



Comparison of MW Tuning Results Temperature Profile Residual Bias for 56 Ocean Granules of 07/20/02

Edward T. Olsen
AIRS Science Team Meeting
September, 2002
Camp Springs, Maryland

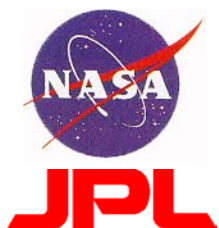


MW Tuning Status

What Has Been Done



- **Microwave Tuning for each of the 30 AMSU footprints in a scan line is now necessary due to the asymmetrical scan bias present in AMSU-A1 and HSB observed radiances.**
- **Larry McMillin (NOAA) used the 7/4/02 Focus Day MW observed radiances over ocean surface and radiances computed from the collocated AVN forecast to calculate MW bias and tuning coefficients for the case of ocean FOVs.**
- **Joel Susskind (GSFC) used observed MW radiances over ocean surface for selected granules of 7/20/02 Focus Day and radiances computed from the collocated ECMWF forecast to calculate MW bias for the case of ocean FOVs.**
- **JPL computed simulated cloud free radiances for the 7/20/02 Focus Day.**
- **The impact of the two sets of asymmetrical bias and tuning coefficients on the Level 2 MW-Only retrieval of the atmospheric temperature profile has been evaluated using a set of 56 ocean granules selected from the 7/20/02 Focus Day.**



Ocean Granules Selected for Tuning Test

Focus Day July 20, 2002

56 Ocean Granules



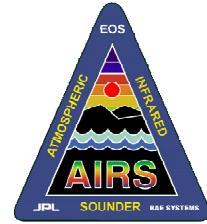
Granules Used To Test Tuning Coefficients

004, 008, 009, 010, 011, 019, 020, 027, 037, 050, 057, 069, 070, 074, 075, 084, 085, 086, 090, 091, 092, 100, 101, 102, 103, 107, 117, 118, 119, 132, 133, 134, 140, 141, 149, 156, 157, 159, 160, 184, 185, 200, 201, 206, 207, 208, 216, 218, 222, 223, 224, 225, 226, 238, 239, 240

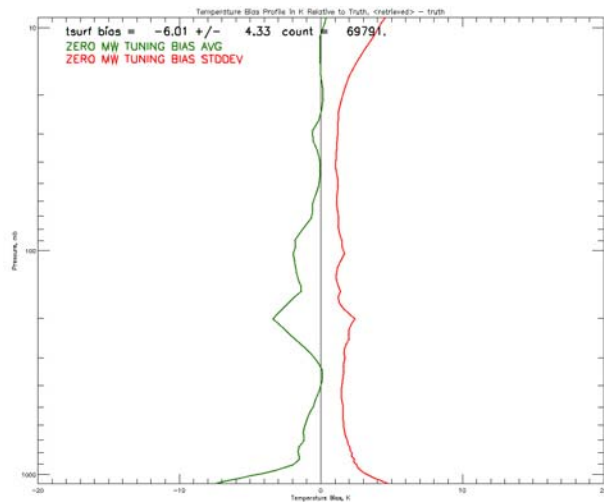
Note: GSFC Tuning Coefficients Created Using Ocean FOVs from Granules
016, 029, 034, 050, 051, 065, 066, 081, 082, 083, 098, 099, 100, 110, 111, 127,
143, 164, 209, 231



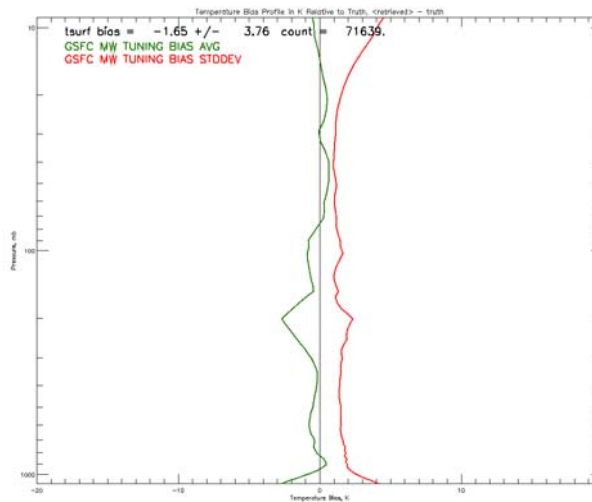
Comparison of Effect of MW Tuning Residual Retrieved Temperature Profile Bias



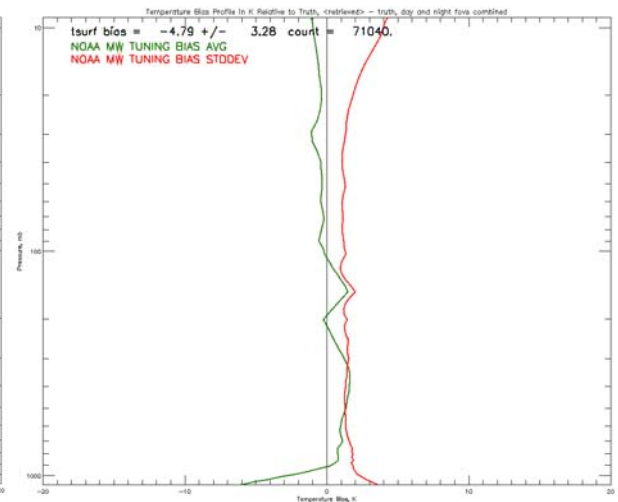
Focus Day July 20, 2002
56 Ocean Granules
MW Retrievals
Required LandFrac of FOVs = 0.0



**No Tuning
Day & Night**



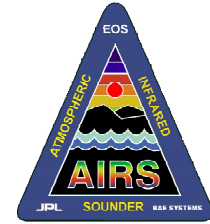
**GSFC Tuning
Day & Night**



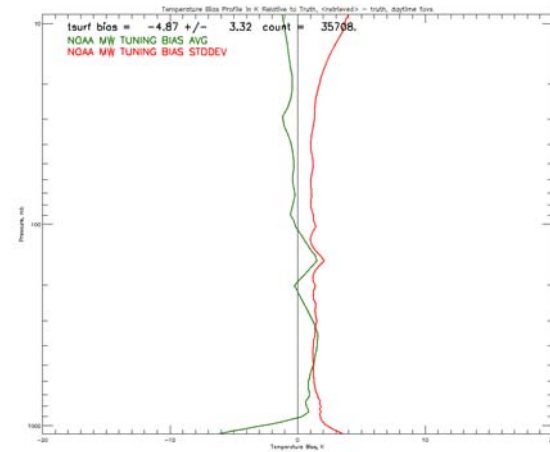
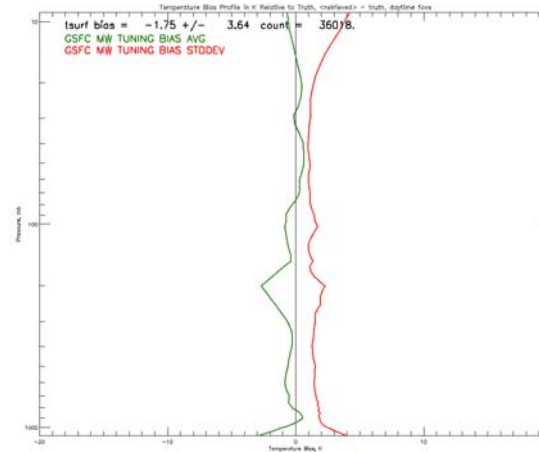
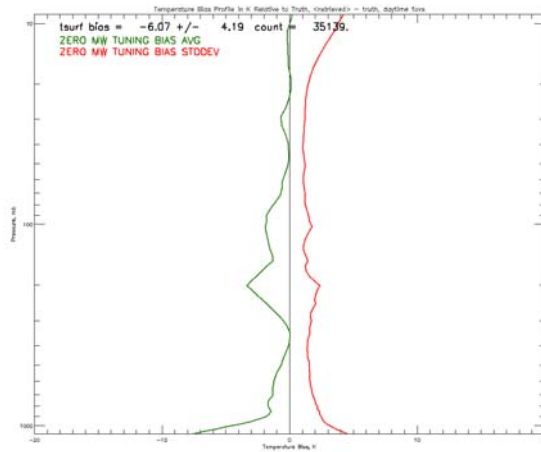
**NOAA Tuning
Day & Night**



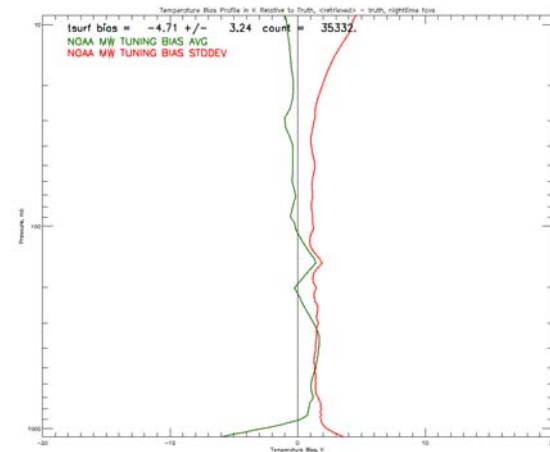
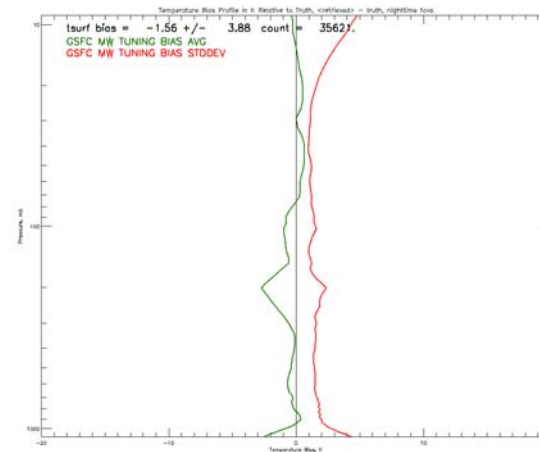
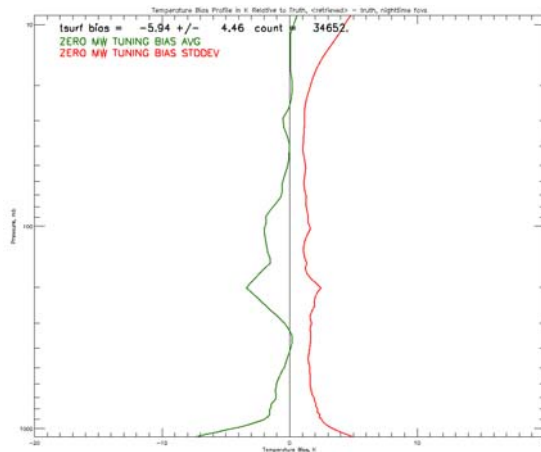
Comparison of Effect of MW Tuning Residual Retrieved Temperature Profile Bias



Daytime FOVs



Nighttime FOVs



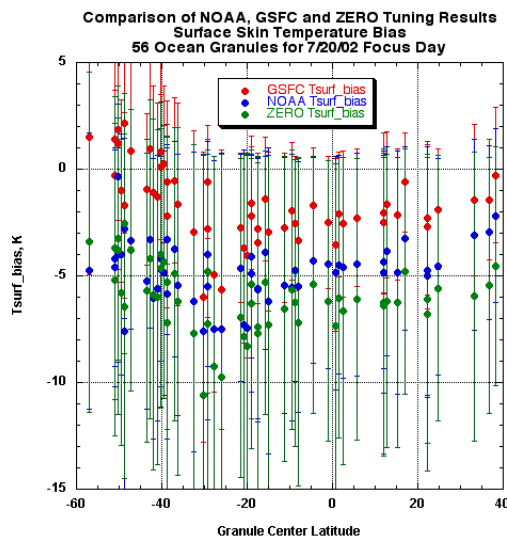
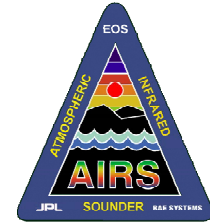
No Tuning
September, 2002

GSFC Tuning
AIRS Science Team Meeting

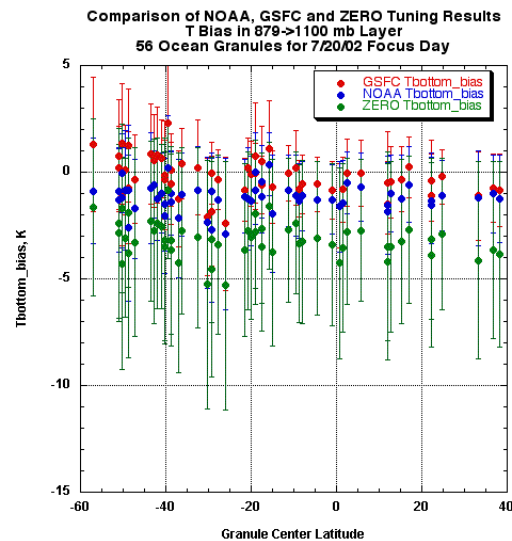
NOAA Tuning



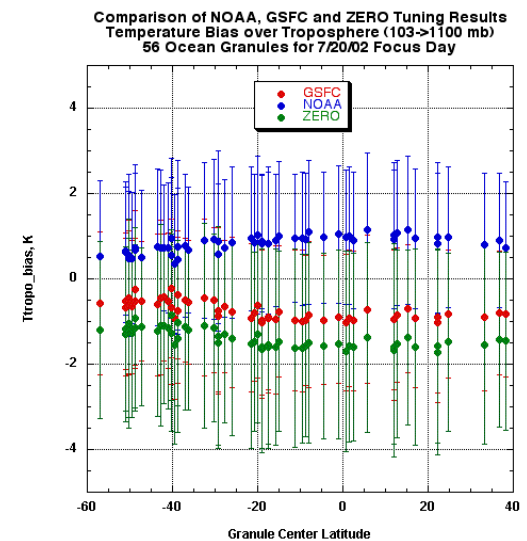
Comparison of Effects of MW Tuning Latitude Dependence of Residual Retrieved T Bias in Lower Atmosphere



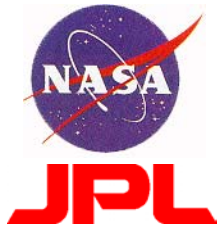
Tsurf Bias vs Lat



Lowest layer T Bias vs Lat



Ttropo Bias vs lat



MW Tuning Status

What Remains to be Accomplished



- **Evaluate impact of MW tuning over ocean granules (Rosenkranz and McMillin)**
- **Additional MW tuning, incorporating land and mixed (land+water), will take place in conjunction with IR tuning**